

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-58. (Cancelled).

59. (Previously Presented) A method of making a crystalline superconducting ceramic, said method comprises:

- a) providing a solution comprising a rare earth salt, an alkaline earth metal salt and a copper salt;
- b) placing said solution onto a substrate to provide a precursor-covered substrate;
- c) heating said precursor-covered substrate in an atmosphere containing fluorinated gas to provide a fluorinated precursor wherein the fluorinated gas comprises at least one hydrofluorocarbon, and wherein the precursor is substantially non-superconducting and;
- d) transforming the fluorinated precursor into a crystalline superconducting ceramic, wherein the crystalline superconducting ceramic contains only trace amounts of fluorine.

Claims 60-71. (Cancelled).

72. (New) A method according to Claim 59 wherein said solution has a pH in the range of approximately 1 to 5.

73. (New) A method according to Claim 59 further comprising dispersing said solution in a carrier gas before placing said solution on said substrate, wherein said carrier gas comprises an inert gas.

74. (New) A method according to Claim 73 wherein said inert gas is selected from the group consisting of nitrogen, argon, helium and mixtures thereof.

75. (New) A method according to Claim 73 wherein said carrier gas further comprises oxygen.

76. (New) A method according to Claim 59 further comprising heating said substrate before placing said solution on said substrate.

77. (New) A method according to Claim 59 wherein said rare earth salt is selected from the group consisting of a yttrium (Y) salt, a neodymium (Nd) salt, a, a ytterbium (Yb) salt, an europium (Eu) salt, a gadolinium (Gd) salt, a dysprosium (Dy) salt, a holmium (Ho) salt, an erbium (Er) salt, a lanthanum (La) salt, a lutetium (Lu) salt, a samarium (Sm) salt, a thulium (Tm) salt, and mixtures thereof.

78. (New) A method according to Claim 77 wherein said rare earth salt is a yttrium (Y) salt.

79. (New) A method according to Claim 77 wherein said rare earth salt is selected from the group consisting of a rare earth nitrate, a rare earth acetate and mixtures thereof.

80. (New) A method according to Claim 77 wherein said rare earth salt is selected from the group consisting of a rare earth sulfate, a rare earth chloride, a rare earth bicarbonate and mixtures thereof.

81. (New) A method according to Claim 59 wherein said salt of an alkaline earth metal is selected from the group consisting of a strontium (Sr) salt and a barium (Ba) salt and mixtures thereof.

82. (New) A method according to Claim 81 wherein said salt of an alkaline earth metal is a barium (Ba) salt.

83. (New) A method according to Claim 82 wherein said barium (Ba) salt is selected from the group consisting of a barium nitrate, a barium acetate and mixtures thereof.

84. (New) A method according to Claim 82 wherein said barium salt is selected from the group consisting of a barium sulfate, a barium chloride and mixtures thereof.

85. (New) A method according to Claim 59 wherein said copper salt is selected from the group consisting of a copper nitrate, a copper acetate and mixtures thereof.

86. (New) A method according to Claim 59 wherein said copper salt is selected from the group consisting of a copper sulfate, a copper sulfide, a copper chloride and mixtures thereof.

87. (New) A method according to Claim 59 wherein said substrate is selected from the group consisting of a single crystalline ceramic, polycrystalline ceramic, a single crystal and a metal substrate.

88. (New) A method according to Claim 87 wherein said substrate is selected from the group consisting of SrTiO_3 , LaAlO_3 , zirconia, CeO_2 , Y_2O_3 , MgO , and SrRuO_3 .

89. (New) A method according to Claim 87 further comprising placing a buffer layer on said metal substrate before placing said solution.

90. (New) A method according to Claim 59 wherein said fluorinated gas is selected from the group consisting of CHF_3 , CH_2F_2 , CH_3F , CHF_2CHF_2 (HFC 134), CHF_2CF_3 (HFC 125), CHF_2CH_3 (HFC 152a), $\text{CF}_3\text{CH}_2\text{F}$ (HFC 134a), CH_3CF_3 , CH_2FCH_3 , $\text{CHF}_2\text{CH}_2\text{F}$, $\text{CH}_2\text{FCH}_2\text{F}$, $\text{CF}_3\text{CH}_2\text{CF}_3$ (HFC 236fa), a fluorinated propane, a fluorinated propylene, a fluorinated ethylene and mixtures thereof.

91. (New) A method according to Claim 59 wherein said fluorinated gas comprises $\text{CF}_3\text{CH}_2\text{F}$ (HFC 134a).

92. (New) A method according to Claim 59 wherein said solution comprises Y, Ba and Cu in a ratio of 1:2:0.5.

93. (New) A method according to Claim 59 further comprising subjecting said solution to a high voltage Corona discharge before or during the placing of said solution on said substrate.

94. (New) A method according to Claim 93 wherein said solution comprises Y, Ba and Cu in a ratio of 1:2:3.5.

95. (New) A method according to Claim 59 where said atmosphere containing fluorinated gas is subject to a high voltage electrical discharge.